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Population Aging and Individual Attitudes toward Immigration: Disentangling Age, Cohort and Time Effects

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Population Aging and Individual Attitudes toward Immigration: Disentangling Age, Cohort and Time Effects

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Abstract

In the face of rising old-age dependency ratios in industrialized countries like Germany, politicians and their electorates discuss the loosening of immigration policies as one policy option to ensure the sustainability of public social security systems. The question arises whether this policy option is feasible in aging countries: older individuals are typically found to be more averse to immigration. However, cross-sectional investigations may confound age with cohort effects. This investigation uses the 1999-2008 waves of the German Socio-Economic Panel to separate the effect of age on immigration attitudes from cohort and also from time effects. Over the life cycle stated immigration concerns are predicted to increase well into retirement and decrease afterward. Relative to other issues, immigration concerns are found to actually decrease over the life cycle.

JEL classification: D78, F22, J10
Keywords: Immigration, Demographic Change, Political Economy

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1 Introduction

Rising old-age dependency ratios in industrialized countries like Germany pose a challenge to the viability of public pension and health systems. The loosening of immigration policies is often seen as one policy option to counter this challenge. The United Nations report on replacement migration (UNPD (2001)) calculates that in order to keep the ratio of 15 to 64 year olds to over 64 year olds in the 15 old European Union countries constant until 2050, immigration would have to be more than 60 times its forecast. Such a huge increase in immigration is clearly unrealistic. However, other investigations have shown that even modest increases in immigration can have positive fiscal impacts, especially if immigrants are selected according to age and skill, see, for instance, Storesletten (2000) or Bonin et al. (2000).

As Rodrik (1995) argues, ultimately, voters' individual preferences are key to policy outcomes in any democracy.[1] In countries with aging populations, older individuals' attitudes should play an increasingly important role in shaping policy. This paper looks at the impact of age (and other characteristics correlated with age) on individual attitudes toward immigration. It uses a large representative panel survey, the German Socioeconomic Panel (SOEP). The sample is limited to those individuals eligible to vote, i.e. adults with German nationality.

Previous empirical investigations of the determinants of immigration attitudes have found negative or hump-shaped effects of age, without distinguishing life cycle from cohort or time effects, however. In any cross section, an individual's age and birth year are perfectly correlated. Yet they may have differential effects on attitudes toward immigration. For instance, a negative estimated effect of age on immigration attitudes is consistent with individuals growing more averse to immigration over the life cycle. But it is also consistent with older cohorts of individuals being less open toward immigrants, and growing older not having any effect on immigration attitudes at all.

In any time series in contrast, the effect of growing older on attitudes would be confounded with time effects. An increase in an individuals's opposition to immigration from one period to the next could be attributed to the fact that the individual has grown older or to changes in macroeconomic circumstances. Consequently, panel data are necessary to isolate the effect of growing older from cohort and time effects.

This paper follows two approaches to isolate the effect of age in an un-

[1] A recent publication modeling the mapping of individual immigration attitudes to immigration policy outcomes is Facchini and Mayda (2008).

balanced panel of German voters. Firstly, it includes year of birth or dummy variables for survey year as explanatory variables in addition to age. Secondly, models which only use the within variation of the data, the variation in time for each individual, are estimated.

Whereas individuals living in areas with low local birth rates have been found to be less averse to immigration (see Ivlevs 2008), the present investigation finds mixed evidence for the political feasibility of policies aiming at increasing immigration as a country is aging. On the one hand, predicted concerns about immigration (based on the estimation sample) decrease only past age 70. On the other hand, relative to other areas of concern, predicted immigration becomes less prominent over the life cycle, whereas it is more prominent among older than among younger generations of individuals in the sample. Survey year is significant, with individuals most worried about immigration when unemployment is high. There is no time trend in predicted immigration concerns nor in the impact that different respondent characteristics have on immigration concerns.

The remainder of the paper is structured as follows. Section 2 summarizes previous findings on the political economy of immigration and on the determinants of immigration attitudes. The data and the empirical approach are introduced in section 3. Section 4 discusses the results. Section 5 summarizes the most important findings and outlines directions for further research.

2 Background and Related Literature

Theoretical research suggests that on economic grounds old individuals should be more open to immigration than younger ones. Assuming that immigration is predominantly labor migration, immigrants can be considered to be substitutes to workers and complements to (older) capital owners. The translation of heterogeneous interests among natives endowed with different amounts of capital into immigration policies is modeled by Benhabib (1996) and Mazza and van Winden (1996) for instance.

In addition to benefiting from an increase in capital returns, the closer an individual gets to the end of her life cycle the less she should be worried about immigrant workers who potentially have a higher number of offspring than natives changing the political balance in the future. The role of immigration in shaping the political balance plays a prominent role in dynamic political-economy models of immigration, see, e.g., Dolmas and Huffman (2004), Ortega (2005, 2010) and Sand and Razin (2007).

The conjecture that older natives are the ones who benefit from immigration is subject to some caveats, however. Firstly, the scope for immigration

to have an impact on factor returns diminishes when the movement of capital and goods is taken into account, see Hillman and Weiss (1999) and Calahorrano and an de Meulen (2009). However, there is evidence for negative effects of immigration on wages and/or employment, documented, for example, by Borjas (2003) and Angrist and Kugler (2003).

Secondly, the impact of immigration on consumption levels is also mitigated by pay-as-you-go pensions and contingent on the design of the pension system, see, e.g., Scholten and Thum (1996), Haupt and Peters (1998) and Calahorrano (2010). With flexible benefits, immigration has no effect on contributions and an ambiguous effect on benefits since it has offsetting effects on current wages and on the number of contributors to social security. With fixed pension benefits, native workers benefit from sharing the burden of pension contributions with immigrant workers.

Thirdly, immigrants who do not find employment are a fiscal burden on the welfare state and thus for natives of all ages. In this case, the design of the welfare system determines whether individuals with high or low incomes are most affected, as Facchini and Mayda (2009) explain.

Finally, immigration attitudes are shaped by non-economic as well as economic motives, and it is likely that these non-economic effects vary by age. For instance, older individuals may be more wary of change in general or more opposed to changes in social norms and customs.

In the last 15 years, a number of investigations have addressed labor market, welfare state and non-economic concerns. For the US, Espenshade and Hempstead (1996) and Citrin et al. (1997) test various hypotheses about the factors influencing immigration attitudes, using a CBS News / New York Times poll and the National Election Study, respectively. Both studies document a significant link between education and immigration attitudes: more educated individuals are less likely to favor reducing the number of admitted immigrants.[2]

This finding has two possible explanations. Firstly, education is likely to enhance tolerance or a group norm of tolerance. Secondly, in line with the predictions of neoclassical labor market models, high skilled natives are complements rather than substitutes to immigrants. This is the case if immigrants are less skilled than natives (or if there are increasing returns to scale to skilled labor as argued in World Bank 2008). The finding is in line with the results of virtually all other investigations. Additionally, several authors find evidence for the validity of the second explanation: education plays a larger role for those in the labor force than those outside the labor force, see,

[2]However, in the poll data, individuals who dropped out of high school were even less likely to favor reducing the number of immigrants.

e.g., Kessler (2001), Scheve and Slaughter (2001) and O'Rourke and Sinnott (2006).

Scheve and Slaughter (2001) systematically test the predictions of various international economy models concerning the distributional effects of immigration (and thus immigration preferences), with data from the US National Election Study. They find strong support for the Heckscher-Ohlin[3] model and the factor-proportions analysis model, which predict an opposition of low skilled native workers to low skilled immigration but not for the so called area-analysis model, which assumes geographically segmented labor markets.

Mayda (2006) and O'Rourke and Sinnott (2006) conduct similar analyses based on cross-country data, presuming that the estimated impact of skill on immigration attitudes should be contingent on the shares of high and low skilled workers in the population: being high skilled should have a stronger impact in countries with a high share of high skilled, attracting predominantly low skilled immigrants. The authors' results bear out this presumption.

Additionally, education plays a minor role in countries with an unequal income distribution, see O'Rourke and Sinnott (2006). Due to a high skill premium these countries can be assumed to attract skilled migrants. Furthermore, individuals in occupations with a high share of foreign workers are more likely to oppose immigration, see Mayda (2006).

Dustmann and Preston (2005) and Facchini and Mayda (2009) simultaneously model the impact of immigration on the labor market and on the welfare state. Facchini and Mayda (2009) predict that if welfare taxes rather than benefits are flexible, in richer countries (typically characterized by low skilled immigration) skill should have a positive impact on immigration preferences and income a negative one. The reverse should be true for poorer countries. Since skill and income are highly positively correlated, the estimated income coefficient is significantly positive when skills are not accounted for. However, when Facchini and Mayda (2009) include both variables and their interactions with per capita GDP, the predictions of the model with flexible welfare taxes and fixed benefits are confirmed.

Using data from the European Social Survey, Dustmann and Preston (2005) find that fiscal concerns matter more than labor market concerns. Facchini and Mayda (2009) reach less clear conclusions based on data from the International Social Survey Program. The importance of fiscal concerns is also shown by Dustmann and Preston (2007), based on British data. Mean-

[3]According to the Heckscher-Ohlin model, large immigration "shocks" may induce lower wages because a different set of goods is produced, whereas small shocks only alter the produced quantities of the different goods.

while, cross-country differences are also the focus of Bauer et al. (2000), who show that these differences cannot be ascribed to respondents' characteristics but are largely due to different immigration policies.

Individuals' attitudes toward immigration may further be affected by their preference for homogeneous social norms and customs, as in Hillman (2002). Dustmann and Preston (2007) show that in Britain opposition to immigration increases with ethnic and cultural distance to immigrants. Several other studies document the importance of non-economic factors in shaping immigration attitudes (Espenshade and Hempstead 1996, Chandler and Tsai 2001, Kessler 2001, Gang et al. 2002 and Mayda 2006 among others). Chandler and Tsai (2001) find that besides education, perceived cultural threats were the most important factor and Mayda (2006) finds that non-economic factors explained a larger share of the variance in attitudes than economic factors. Tucci (2005) discusses the "contact hypothesis", which assumes that contact with immigrants reduces prejudice.

Two recent studies on immigration attitudes explicitly take into account the role of population aging, see Ivlevs (2008) and Facchini et al. (2011). Linking survey data from Latvia and the Ukraine to data on local birth rates, Ivlevs (2008) shows that individuals living in areas with low birth rates are less opposed to immigration. He presumes that local birth rates affect perceptions of national demographics and thereby perceptions of the necessity to make up for smaller cohorts of native workers by recruiting immigrant workers. In an ongoing research project Facchini et al. (2011) are comparing the link between age and immigration attitudes across countries.

Virtually all other investigations include individual age as a control variable. Most investigations find a negative age effect, see, for instance, Chandler and Tsai (2001) for the US, Tucci (2005) for Germany, and Facchini and Mayda (2009) using the International Social Survey Program. However, also using the International Social Survey Program, Bauer et al. (2000) find that older people are more likely to think that immigrants are good for the economy, which is in line with labor market models.

Additionally, Brenner (2007) documents a sign change in the estimated coefficients of different age groups after accounting for family-fixed effects, whereas Miguet (2008) estimates a positive effect of age on votes cast for anti-immigration policies in 1988 but a U-shaped effect of age in 2000.

A reverse U-shaped (hump-shaped) age effect on opposition to immigration is found in some other papers, for instance, in Espenshade and Hempstead (1996) with individuals most opposed between ages 24 and 45, and in Ivlevs (2008) with individuals most opposed between ages 50 in regions with low birth rates and 87 in regions with high birth rates. Although O'Rourke and Sinnott (2006) estimate a hump-shaped effect of age, they find that

predicted opposition would only decrease beyond age 100.

The estimated effect of age thus appears to be highly sensitive to the functional form imposed and to the included covariates. The present analysis attempts to include in the estimations all relevant variables correlated with age, such as income, wealth, health and life satisfaction. Additionally, it attempts to disentangle age from cohort and time effects. Due to the panel dimension of the data used, it is possible to include year of birth or time dummies as explanatory variables in addition to age. As an alternative, a model which only uses the within variation of the data is estimated.

3 Data and Empirical Specification

Most previous analyses of immigration attitudes use cross-sectional data. In order to identify the effect of growing older on immigration attitudes and to isolate it from the effect of belonging to a given cohort, it is, however, necessary to use panel data.

The present analysis is based on data from the 2008 release of the SOEP for the years 1999 to 2008.[4] The SOEP is a large representative panel survey, conducted on an annual basis, in which respondents have been asked about their attitudes toward immigration since 1999. It consists of several subsamples, starting with the original sample drawn in 1984. Refreshment samples were drawn in subsequent years to compensate for sample attrition. However, attrition is limited: out of the originally interviewed 5,921 households comprising 12,245 individuals, 3,154 households and 5,626 individuals were still interviewed in 2008.[5]

Three subsamples deliberately oversample certain groups of the population. Whereas the "high income" sample was excluded for the present analysis, respondents from the two immigrant samples were included if they had acquired German nationality. Since the analysis focuses on the voting population, it also excludes individuals below age 18 (the voting age). Out of the remaining 181,326 person-year observations, two were excluded because of missing information on their year of birth and 1,496 (less than 1%) because of missing information on their attitudes toward immigration. The baseline sample thus consists of 179,828 (person-year) observations.

The variable of interest is constructed from the question "What is your

[4]The data used in this paper were extracted using the Add-On package PanelWhiz for Stata. PanelWhiz (http://www.PanelWhiz.eu) was written by Dr. John P. Haisken-DeNew (john@PanelWhiz.eu). See Haisken-DeNew and Hahn (2006) for details. Any data or computational errors in this paper are my own.

[5]For a detailed data description see Wagner, Frick, and Schupp (2007).

attitude toward the following areas - are you concerned about them?", where one of the mentioned areas is immigration to Germany. The possible answers to this question are ordinal, ranging from *very concerned*, *somewhat concerned* to *not concerned*.[6] For the empirical analysis, the answers are coded 3, 2, and 1, respectively, such that higher values correspond to more concerns.

There is quite some variation in the given answers, between individuals and across time. Tables 1 and 2 display some summary statistics for the question "Are you concerned about immigration to Germany?". Overall 31% of the answers in the sample were "very concerned", 46% were "somewhat concerned" and 23% were "not concerned". However, almost 58% of respondents said at least once that they were very concerned, while 48% were not concerned at least once. Out of those somewhat concerned, about 58% were always somewhat concerned.

Immigration Concerns	**Overall**	**At Least Once**	**Always**
very concerned	31.12	57.58	53.29
somewhat concerned	45.95	78.76	57.63
not concerned	22.93	48.31	49.53

Percent of very concerned, somewhat concerned and not concerned answers in the estimation sample. Percent of respondents who stated to be very concerned, somewhat concerned and not concerned at least once. Percent of respondents who always stated to be very concerned, somewhat concerned and not concerned.

Table 1: Shares of Immigration Concerns

The share of those who were very concerned in one year and not concerned in the next is very low, see table 2. The same holds for the transition from being not concerned to being very concerned. About 33% of respondents who were either very concerned or not concerned said that they were somewhat concerned in the following year.

There is no natural scale for measuring immigration concerns. The original SOEP question allows respondents to choose between three ordered categories. The distance between any two categories need not be equal (or meaningful at all). However, one can think of stated immigration concerns depending on latent continuous concerns about immigration. With y_{it}^* as

[6] Tucci (2005) and Brenner (2007) have used this variable for analyzing attitudes toward immigration.

Immigration Concerns	very concerned	somewhat concerned	not concerned
very concerned	61.45	33.24	5.31
somewhat concerned	21.53	61.27	17.20
not concerned	6.90	33.26	59.83

Percent of respondents with a given stated concern in one period who stated to be very concerned, somewhat concerned and not concerned in the next period.

Table 2: Transitions for Immigration Concerns

latent concerns and y_{it} as stated concerns, it holds that

$$y_{it}^* = \mu + x_{it}'\beta + \varepsilon_{it} \tag{1}$$

$$y_{it} = \begin{cases} 1 & \text{if} \quad -\infty < y_{it}^* \leq \gamma_1 \\ 2 & \text{if} \quad \gamma_1 < y_{it}^* \leq \gamma_2 \\ 3 & \text{if} \quad y_{it}^* > \gamma_2 \end{cases} . \tag{2}$$

Respondents state that they are "somewhat concerned" if their latent concern exceeds some threshold γ_1 and state that they are "very concerned" if their latent concern exceeds a higher threshold, γ_2. The parameters μ, β and $\gamma = (\gamma_1, \gamma_2)$' can then be chosen such as to maximize the likelihood of observing the sample on hand. This requires an assumption on the distribution of ε_i. Assuming a standard normal distribution function results in the ordered probit model, whereas assuming a standard logistic distribution function results in the ordered logit model. To identify the different parameter values, an additional normalization constraint is necessary. A commonly imposed constraint (applied also in this investigation) is to set μ equal to zero. The effect of the constant is then absorbed into the thresholds γ.

Due to the panel dimension of the data, age and year of birth or age and dummy variables for survey year can simultaneously be included in the vector of explanatory variables x_{it}. An alternative approach to isolate the effect of individual age is to estimate a transformed model, based on the within variation only (the variation in time for each individual). However, there are to date no pre-programed routines to incorporate this kind of transformation into ordered models. Therefore, the following transformed model is estimated by OLS:

$$y_{it} - \bar{y}_i + \bar{y} = \mu + \left(x_{it} - \bar{x}_i + \bar{x}\right)' \beta + \left(\varepsilon_{it} - \bar{\varepsilon}_i + \bar{\varepsilon}\right) . \tag{3}$$

Besides identifying the effect of age on immigration attitudes over the life-cycle, this model has the advantage that it eliminates any time-constant

individual heterogeneity which may be correlated with observable individual characteristics included in x_{it}. Equation (3) thus corresponds to a fixed effects (FE) model.

The SOEP includes information on additional areas people may be concerned about. Respondents are asked some questions with regard to their own situation (their economic situation, their health and their job security, given that they were employed) and several questions on macro issues (general economic development, environmental protection, maintaining peace, crime in Germany and hostility toward foreigners in Germany). Since 2004, the SOEP also includes concerns about the enlargement of the European Union to the east, and since 2008 it includes concerns about terrorism.

Table 5 in the appendix compares summary statistics for all categories of concerns. On average, respondents are most worried about crime, economic development and maintaining peace and least worried about their own situation. Note that immigration concerns have the largest standard deviation among all concerns. Stated immigration concerns thus reflect more than general worries.

However, the age pattern in average concerns is quite similar to the age pattern of immigration concerns as described below, see the left panel of figure 1. Consequently, it is important to avoid confounding a life cycle effect on opposition to immigration with a life cycle effect on general worries or life satisfaction. In fact, life satisfaction has been shown to follow a U-shaped pattern in age, see, for instance, Clark, Oswald, and Warr (1996) and Blanchflower and Oswald (2008).

Both life satisfaction and other areas of concerns are thus included as controls in the regressions. As a robustness check, estimation results excluding other areas of concerns are presented. An alternative approach is using the difference between stated immigration concerns and other areas of stated concerns as a measure of immigration attitudes. Both measures are proxies for "true" immigration attitudes.

The left panel of figure 1 shows mean immigration concerns by age. It reveals a hump-shaped correlation, with opposition to immigration at its strongest among the 70 year olds, and a lot of variation past age 85, probably due to the low number of observations. This panel also plots the age profile of an index of concerns with respect to the other areas, excluding EU enlargement, terrorism and job security, which were not asked of all respondents in all ten years.

The right panel of figure 1 isolates the correlation between year of birth and immigration concerns. It seems to be the case that those born around 1930 are most concerned about immigration. However, the hump shape exhibits far more variation than the one plotted in the left panel, except for

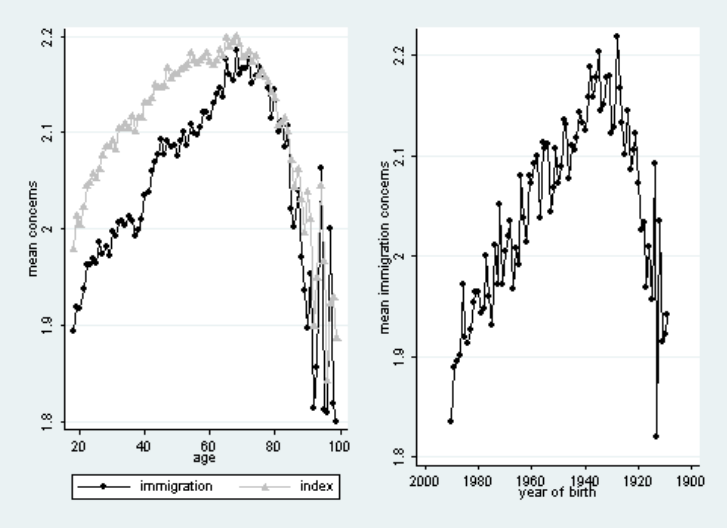

Figure 1: Immigration Concerns as a Function of Age and Year of Birth

The figures show mean concerns by age and by year of birth. "Immigration" denotes concerns about immigration to Germany. "Index" denotes average concerns over the following categories: economic development, the environment, world peace, crime, the situation of foreigners in Germany and the respondent's own economic situation and health.

very old cohorts.[7]

Additionally, there is quite some time variation in mean immigration attitudes, see figure 2. Immigration concerns reach a peak in 2005, which is also the year with the highest unemployment rate in the time frame considered. Contrary to Gang et al. (2002), who document an increase in opposition to immigration from 1988 to 1997, the ten periods observed in the SOEP do not suggest a time trend.

Table 6 in the appendix shows summary statistics for the other explanatory variables included in x_{it}. The theoretical background sketched above presumes that individuals who draw social security incomes and who own (financial) assets are more likely to be in favor of immigration. Income variables are taken from the SOEP's cross-national equivalent files, which contain imputed values easily comparable to income data from other data sets. Household income is used instead of personal income such as labor income in order to avoid limiting the sample to recipients of certain kinds of income. It is deflated using a price index for 2006. Furthermore, an equivalent household income (not shown in table 6) is computed by adjusting for the number

[7]Indeed, although the estimated effect of birth year is quite strong in all regressions, its sign turns out not to be not robust.

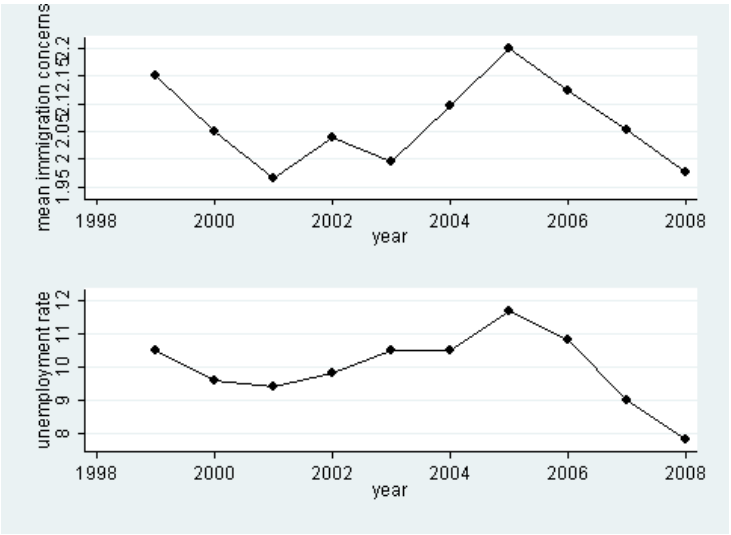

Figure 2: Immigration Concerns and Unemployment Rate as a Function of Survey Year

Source: Bundesagentur für Arbeit (2011): Unemployment rate in the civilian labor force

of household members, using the following formula[8]:

$$\text{adjusted income} = \frac{\text{income}}{1 + 0.5 \cdot (\text{adults} - 1) + 0.3 \cdot \text{kids}} \, .$$

SOEP respondents are asked about different kinds of incomes, but missing values are not imputed for all income variables. Therefore, dummy variables indicating whether an individual has a certain kind of income or asset, which have fewer missing values, are used in most estimations. 46% of respondents receive some public benefit. 11% declared not to own any assets, including a savings account. Individuals were asked specifically about financial assets in 2002 and 2006 only. Out of those observations 48% have some financial assets.

In addition to years of education, the SOEP provides education data categorized according to the UNESCO's international standard classification of education (ISCED), where those still in education are assigned a value of 0. The definition of categories 1 to 6 can be found in table 7 in the appendix. Categories 3 to 5 are further aggregated into a "medium education" dummy, whereas categories 1 and 2 on the one hand and 6 on the other hand then correspond to low and high education, respectively.

[8]This is the so called "OECD modified equivalence scale".

Further controls include gender, marital status, the number of kids living in the household, whether a respondent lives in East or West Germany, immigration background[9] and labor force status. Furthermore, political interest is included, with 1 meaning *very strong* and 4 *none at all*, as are the number of doctor visits in the three months prior to the interview as a measure for health or reliance on the health system.

Table 3 shows the correlation coefficients between age and various other variables. Older individuals have lower household incomes, even after accounting for the number of household members and they are less likely to receive public benefits other than pensions. However, they are more likely to own assets and their financial assets are worth more. They are less satisfied with life and worry more, and they also rely more heavily on the health system.

Age	**Correlation Coefficient**
Equivalent HH income	−0.27
HH receives no benefits	0.43
HH owns no assets	−0.02
Owns financial assets	0.21
Value financial assets	0.10
Life satisfaction	−0.06
Index of concerns	0.10
Doctor visits	0.19

Equivalent household income is real household income, adjusted for the number of household members. Benefits include family allowances, unemployment benefits, care benefits and welfare, but not pensions. Assets include savings accounts, building savings contracts, life insurance, bonds, stock and firm capital. The index of concerns is the average value of concerns asked in all years to all respondents. The number of doctor visits in the three months prior to the interview is reported.

Table 3: Correlation of Age with Other Variables

The next section extensively discusses results based on stated immigration concerns. This is the obvious measure for immigration attitudes. However, the regression results show that the estimated impact of some explanatory variables on immigration concerns is highly sensitive to whether additional concerns are included as controls. Including these other areas of concern may imply endogeneity problems whereas excluding them may induce an omitted

[9]It is likely that a large share of the immigrants in the voting population sample are descendants of Germans who automatically received citizenship upon immigration. Out of the 2,090 observations with an immigrant background and valid answers on whether they had a foreign parent only 51% stated to have a foreign parent.

variable bias. The difference between immigration and other concerns as a measure for immigration attitudes does not suffer from these problems and is also discussed.

4 Results

Firstly, the estimation results for stated immigration concerns using ordered models are presented and compared to the estimation results using OLS. Whereas a first set of estimations includes time dummies in addition to age, a second set of estimations includes year of birth instead. Several robustness checks are discussed. Secondly, the results of estimating a pooled OLS model of stated immigration concerns are compared to the results from exploiting the within variation of the data only. Since time-invariant variables cancel out of the model in equation (3), only time-variant variables are used in both models in order to make the results comparable. Thirdly, the difference between immigration and other concerns is introduced as an alternative measure for immigration attitudes.

Stated Immigration Concerns: Ordered vs. Linear Models

As a first step, a regression model with a full set of covariates, including time dummies, is estimated by pooled OLS, ordered probit and ordered logit. Age, age squared, age to the power of three and age to the power of four are included because in regressions without other controls these first four powers proved to be significant. Table 8 in the appendix contains a comparison of the regression results for these models.

The age terms are jointly but not individually significant in all three models when accounting for a full set of covariates. It is remarkable that age still has an independent effect on immigration concerns, even though a host of variables correlated with age like income and life satisfaction are controlled for. Compared to 1999, individuals were less concerned about immigration in all years but 2005, the year with the highest unemployment rate in the sample period.

Since the effect of age on immigration concerns is highly non-linear, it is best illustrated visually.[10] Figure 3, based on the ordered probit model, shows the predicted probabilities of not being concerned, being somewhat concerned and being very concerned about immigration for different ages, for a male

[10]The corresponding figure for the ordered logit model is available upon request.

married respondent from West Germany who has no migration background, medium education, is working, does not receive any state benefits and owns some kind of assets. Other variables are set to their means.[11]

Ceteris paribus, predicted immigration concerns increase slightly with age. Across all ages, the predicted probability of being somewhat concerned is highest and the probability of not being concerned lowest. The probability of being very concerned increases slightly up to age 70 and then decreases markedly. The reverse pattern is observed for the probability of not being concerned. Immigration concerns thus seem to increase as individuals approach retirement and decrease only as they approach the end of their lives.

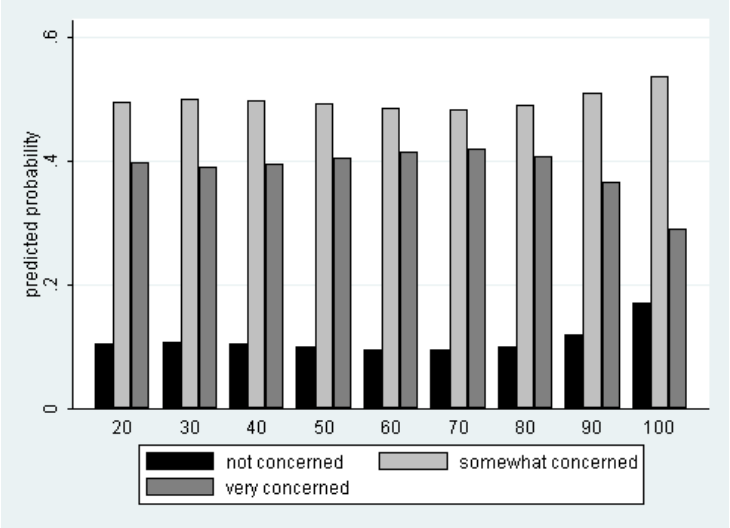

Figure 3: Effect of Age on the Predicted Probabilities for Immigration Concerns, Ordered Probit Including Time Dummies

Simulations with Clarify based on table 8, ordered probit model. Results for the ordered logit model are available upon request. To simulate the probabilities continuous variables were set to their means. Other covariates were set to male, married, from West Germany, no immigrant, medium education (ISCED 3/4/5), working, not receiving any state benefits but owning some kind of assets.

However, being retired instead of working has no significant effect on immigration attitudes, see table 8. Neither do unemployed individuals voice more concerns, which is in line with the literature. Individuals who are in education, working irregularly or not in the labor force are less concerned about immigration. For the first and last group labor market competition

[11]Both the mean probabilities in figures 3 and 4 and the statistics in table 4 were simulated using the Stata program Clarify, see Tomz, Wittenberg, and King (2003). The usefulness of these simulations is demonstrated in King, Tomz, and Wittenberg (2000).

from potential immigrants is obviously not an issue. Furthermore, individuals from all three groups are likely to have low incomes and therefore pay low welfare state contributions. If an increase in welfare costs due to immigration entails higher contributions rather than lower benefits, it makes sense that individuals with low incomes are less concerned.

This presumption is confirmed by the significantly positive coefficient of household income: individuals in households with higher (equivalent) incomes are more concerned about immigration. Individuals who do not themselves benefit from any kind of state support and individuals who rely relatively little on the health system, proxied by the number of doctor visits, are also more concerned.

Labor market competition from immigrants seems to be more of an issue for natives with low education, who are significantly more concerned than those who have not yet completed their education, the reference category. Highly educated natives are significantly less concerned while those with medium education do not differ significantly from those who have not yet completed their education. This result is in line with labor market concerns about actual immigration patterns in Germany (immigrants have on average lower education than natives), but also with political correctness among the highly educated, as argued above.

The hypothesis that individuals with capital holdings favor immigration (presumably because it implies an increase in labor supply) is also confirmed. Individuals who do not own any assets are significantly more concerned about immigration than those who do own some assets. Admittedly, the dummy for household asset ownership is a very crude measure for wealth or capital holdings. The impact of other wealth indicators is discussed below, confirming the result that wealthy individuals are less opposed to immigration.

Immigrant workers, although nationalized, tend to be most negatively affected by further immigration, see for instance Ottaviano and Peri (2008). However, they can also be expected to have the smallest cultural distance to new immigrants. Since Dustmann and Preston (2007) find cultural distance to be a powerful predictor of opposition to immigration it is not surprising that immigrants state significantly less concerns.

Quite remarkable is the finding that being East German reduces concerns about immigration. In fact, East Germans are on average more concerned than West Germans, and the difference is significant. Living in the East has a positive effect on immigration concerns in univariate regressions. The effect of living in the East changes its sign when controlling for other concerns. This implies that the opposition of East Germans to immigration is due to different (observable) characteristics. Most importantly, East German respondents are generally more concerned than West German respondents,

and East Germans with the same level of average concerns as West Germans are at least less likely to voice concerns about immigration.

In general, those who worry more also worry more about immigration, with the exception of concerns about the environment and world peace, two issues about which individuals on the left of the political spectrum are more likely to worry.[12] Concerns about crime are the strongest predictor of concerns about immigration, followed by concerns about general economic development. Concerns about one's own economic situation are far less important, a result also in line with the literature, see, e.g., Citrin et al. (1997).

The estimation results for these respondent characteristics are similar when including year of birth as a control variable instead of the time dummies. Therefore, table 9 only shows the estimated coefficients for the age terms and for year of birth. Before examining differences in the estimated age pattern of immigration concerns compared to figure 3, the quantitative importance of selected other variables is discussed based on table 4. This table reports the predicted probability of not being concerned, being somewhat concerned and being very concerned about immigration for the model which includes year of birth as a control. These predicted probabilities are calculated for a male married respondent from West Germany who has no migration background, medium education, is working, does not receive any state benefits and owns some kind of assets, whereas other variables are set to their means.

Economic variables like income and asset ownership turn out to have quite a weak effect on immigration concerns. Reliance on the health system is more important, and the effect of a change in labor force status from "working" to "in education" is also stronger, see table 4. Education has an even stronger effect, with the highly educated 11 percentage points more likely not to be concerned and 15 percentage points less likely to be very concerned than those with low education. The strong negative effect of immigration background on concerns about immigration clearly mandates a cultural rather than economic interpretation. It is about as strong as the effect of education. Meanwhile, the effect of life satisfaction is quite weak.

The four age terms are still jointly but not individually significant, see table 9. However, there is a sign change in the estimated coefficient for age, which is now positive. The estimated coefficient for year of birth is also positive, indicating that ceteris paribus younger cohorts are more averse to immigration. Table 4 shows a pronounced difference between the youngest and oldest cohort in the sample: ceteris paribus the youngest individuals

[12]Surprisingly, the same does not hold for being concerned about the situation of foreigners in Germany.

Variable	Change from to	Probability of not being concerned	Probability of being somewhat concerned	Probability of being very concerned
East German	no	0.011	0.007	−0.018
	yes	(0.003)	(0.002)	(0.005)
		[0.006; 0.016]	[0.004; 0.011]	[−0.027; −0.009]
Immigrant	no	0.113	0.029	−0.141
	yes	(0.006)	(0.002)	(0.006)
		[0.100; 0.124]	[0.025; 0.033]	[−0.153; −0.129]
Education	low	0.110	0.041	−0.151
	high	(0.005)	(0.003)	(0.006)
		[0.100; 0.120]	[0.035; 0.047]	[−0.164; −0.138]
Labor	working	0.057	0.026	−0.082
force status	in education	(0.007)	(0.002)	(0.009)
		[0.043; 0.070]	[0.021; 0.030]	[−0.099; −0.065]
Income	mean	−0.010	−0.008	0.018
	max	(0.002)	(0.002)	(0.004)
		[−0.015; −0.006]	[−0.012; −0.004]	[0.010; 0.027]
Benefits	no	0.007	0.005	−0.012
	yes	(0.003)	(0.002)	(0.004)
		[0.002; 0.012]	[0.001; 0.008]	[−0.020; −0.003]
Assets	yes	−0.008	−0.006	0.014
	no	(0.003)	(0.002)	(0.005)
		[−0.014; −0.003]	[−0.011; −0.002]	[0.005; 0.025]
Political	mean	0.033	0.018	−0.051
interest	very strong	(0.003)	(0.001)	(0.004)
		[0.028; 0.037]	[0.016; 0.021]	[−0.058; −0.044]
Life	mean	0.010	0.007	−0.017
satisfaction	max	(0.002)	(0.001)	(0.003)
		[0.007; 0.014]	[0.005; 0.009]	[−0.023; −0.012]
Doctor	mean	0.092	0.028	−0.120
visits	max	(0.027)	(0.003)	(0.027)
		[0.043; 0.148]	[0.020; 0.033]	[−0.171; −0.066]
Year	min	−0.169	−0.085	0.254
of birth	max	(0.025)	(0.008)	(0.033)
		[−0.217; −0.119]	[−0.101; −0.067]	[0.186; 0.315]

Mean effect, standard error in parentheses and 95% confidence interval in brackets. Simulations with Clarify based on table 9, ordered probit model. Results for the ordered logit model are available upon request. To simulate the probabilities continuous variables were set to their means. Other covariates were set to male, married, from West Germany, no immigrant, medium education (ISCED3/4/5), working, not receiving any state benefits but owning some kind of assets.

Table 4: Effect of Changes in Various Explanatory Variables on the Predicted Probabilities for Immigration Concerns, Ordered Probit

are predicted to be 17 percentage points less likely not to be concerned and more than 25 percentage points more likely to be very concerned than the oldest individuals. Consequently, the age pattern of predicted immigration concerns is far more pronounced when holding constant year of birth than when holding constant survey year, see figure 4.

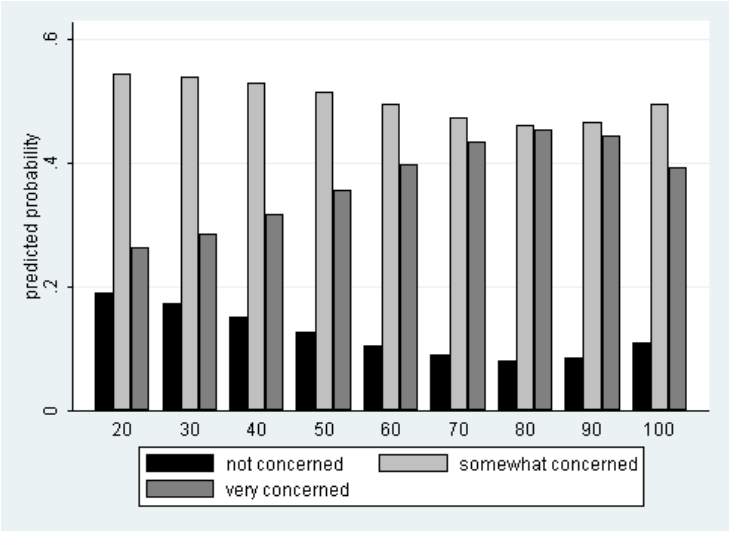

Figure 4: Effect of Age on the Predicted Probabilities for Immigration Concerns, Ordered Probit Including Year of Birth

Simulations with Clarify based on table 9, ordered probit model. Results for the ordered logit model are available upon request. To simulate the probabilities continuous variables were set to their means. Other covariates were set to male, married, from West Germany, no immigrant, medium education (ISCED 3/4/5), working, not receiving any state benefits but owning some kind of assets.

The probability of being very concerned now increases up to age 80 and is still quite high at age 90. Age appears to be quite a strong predictor of immigration concerns: ceteris paribus an 80 year old is predicted to have an about 10 percentage points lower probability of not being concerned and an almost 20 percentage points higher probability of being very concerned than a 20 year old. The comparison of figures 3 and 4 yields evidence for distinct life cycle and cohort effects on immigration attitudes. Whereas older cohorts seem to be less concerned about immigration, concerns grow over the life cycle.

Table 8 has shown that there are significant differences in immigration concerns across different years. As a robustness check, separate ordered probit models are estimated for each year.[13] Since age and year of birth are

[13]The estimation results for this and the following two robustness checks are available

perfectly collinear in each cross section, year of birth has to be excluded. The estimated age effect thus confounds life cycle and cohort. The four age terms are jointly significant in seven out of ten years. There is no time trend, however. Being highly educated is significant in all years, as are immigration background, gender, political interest and most concerns. All other variables turn insignificant in some years. Also, being unemployed significantly enhances immigration concerns in 2005 and 2006. Since unemployment rose in 2005, it is likely that individuals who became unemployed voiced significantly higher concerns.

An additional robustness check is estimating separate regressions for East and West Germany. The age effect is estimated with far less precision for East Germany. Since birth rates are much lower in East Germany, this confirms the finding by Ivlevs (2008) that age is less significant in regions with low birth rates.

Additionally including a dummy for personal ownership of *financial* assets reveals that people who own financial assets are less concerned. However, the *value* of financial assets has no significant effect on immigration concerns. The four age terms are still jointly significant when controlling for ownership of financial assets.

Table 10 shows detailed regressions results for replacing the "no assets" dummy by dummy variables for the ownership of different *types* of assets. These types are savings accounts, building loans, life insurance, bonds, firm capital and stocks. Whereas ownership of firm capital or stocks diminishes immigration concerns, ownership of bonds or building loans enhances them.

The difference between bond and stock holders is their willingness to take risks, likely to be positively correlated with general open-mindedness, but also their financial literacy, positively correlated with education. However, education is still highly significant. Furthermore, the value of firm capital is most clearly positively affected by an increase of domestic labor supply, whereas the returns on bonds and building loans may not be related to labor supply at all. The difference between different types of assets is thus in line with the theoretical results sketched in section 2.

The signs and significance levels are the same across all three models in tables 8 and 9. The sole problem with OLS is then that the quantitative interpretation of the estimated coefficients need not make much sense. Nonetheless, figures based on the estimated coefficients from the linear models are instructive because they confirm marked differences between life cycle and cohort effects on immigration attitudes.

Figure 5 shows the derivative of immigration concerns with respect to age

upon request.

and its 95% confidence interval. This is the combined marginal effect of all four age terms. The left panel represents the OLS model which includes time dummies as controls and the right panel shows the model which includes year of birth. Whereas in the model with time dummies, the marginal effect of age on immigration concerns is significantly positive for a limited range of ages only, it is positive up to age 80 and above when controlling for year of birth. Note, however, that the figure only ranges from age 18 to age 85. For very old ages, the marginal effect of age is subject to a lot of uncertainty.

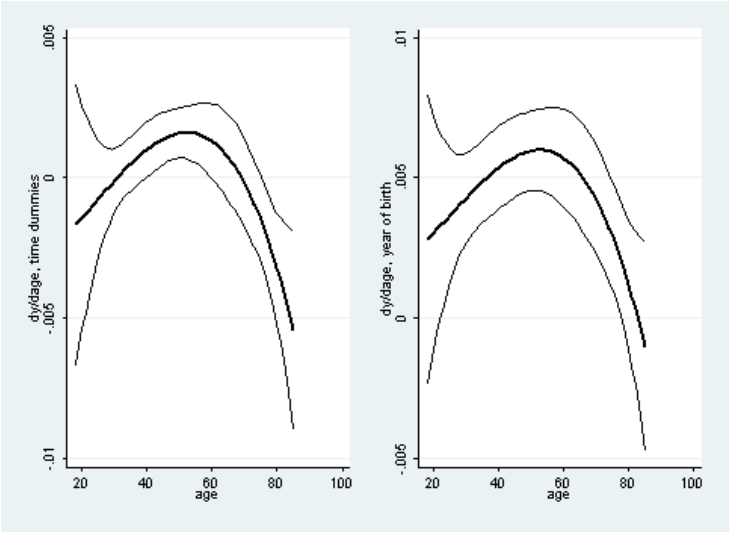

Figure 5: Marginal Effect of Age on Immigration Concerns, Including Time Dummies vs. Including Year of Birth

In summary, immigration concerns differ across time and between different cohorts of individuals. There is also quite a strong life-cycle effect on immigration concerns with individuals growing more concerned up to age 80. However, age does not have a significant impact on stated immigration concerns in all years, and the age effect is estimated with less precision for East than for West Germany. Highly educated individuals are least concerned about immigration. Other labor market and welfare state related variables are also significant but quantitatively less important. Owners of assets with variable returns, like firm capital and stocks, voice significantly less concerns about immigration. Among the non-economic variables, own immigration background has the strongest positive impact on immigration attitudes.

Stated Immigration Concerns: Within-Transformed Model

As an alternative way of isolating the effect of growing older on immigration concerns, a model which only uses the within variation of the data, as in equation (3), is compared to a pooled OLS model with a full set of time variant controls. The within or FE model has the additional advantage that it eliminates any unobserved heterogeneity between individuals which is time-invariant. For these comparisons only individuals who remained in the panel for at least two years are used.

Table 11 in the appendix displays complete regression results. The first column shows estimation results for OLS, leaving out the explanatory variables with little or no time variation (gender, immigration background, both year of birth and time dummies, and living in East Germany). The number of person-year observations is reduced only slightly to $171,636$. Furthermore, the overall R^2 , the signs and significance levels are comparable to the first column of table 8.[14]

Individuals remained on average 5.9 years in the sample, and the number of individuals who spent at least two years in the panel is $29,299$, such that it should be possible to detect significant life cycle effects. However, some variables vary very little over the life cycle. Therefore, it is not surprising that the within model has fewer significant coefficients than the pooled OLS model. The four age terms are jointly significant in both models.

Figure 6 illustrates the derivative of immigration concerns with respect to age for the OLS and within models up to age 85. In the OLS model, age has a significantly positive (enhancing) effect on concerns between ages 40 and 60. Over the life cycle, growing older enhances immigration concerns up to age 80 almost and it is significant at the 5% level for a much larger range of ages, see the right panel of figure 6. This is in line with the ordered models and also with the pooled OLS model which includes birth year as a control, see figure 5.

Although the differences between the two columns in table 11 may indicate that unobserved individual heterogeneity is indeed a problem, the difference in the estimated effect of age on immigration concerns is similar to the one which is observed when comparing models with and without year of birth as in figure 5: whereas in a pooled OLS model, the estimated effect of age confounds growing older with belonging to a given cohort, the FE model isolates the effect of growing older.

There are some additional differences. The asset ownership dummy turns insignificant in the within estimation. However, a robustness check (not dis-

[14] Only concerns about the environment turn insignificant, whereas being on maternity leave turns significant. The sizes of the estimated coefficients change slightly.

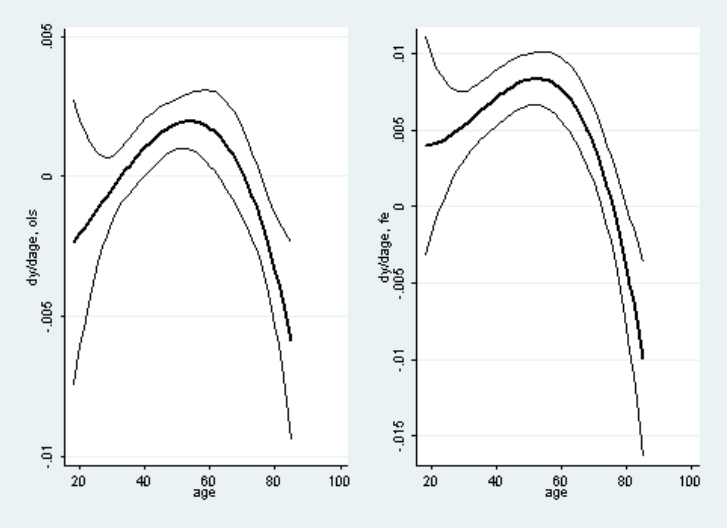

Figure 6: Marginal Effect of Age on Immigration Concerns, OLS vs. FE

played) has shown ownership of individual *financial* assets to be significant over the life cycle. The argument that capital owners are less opposed to immigration thus still seems to be valid. The impact of welfare state concerns is partly confirmed: whereas the dummy for receiving state support is significant in both specifications, income apparently has no effect over the life cycle. Furthermore, individuals become less opposed as they rely more heavily on the health system.

Life satisfaction and other concerns also have life cycle effects, with some notable differences for different areas of concerns: individuals who become more concerned over the life cycle in any area also become more concerned about immigration. Some variables with little within variation such as marital status, education and political interest are not significant over the life cycle.

Figure 7 illustrates the predicted value of immigration concerns as a function of age, based on the sample distribution of respondent characteristics by age, also up to age 85. The OLS model predicts a hump-shaped age profile, with immigration concerns most pronounced among the 70 year olds. Immigration concerns over the life cycle are predicted to increase more sharply. A predicted value of 2 corresponds to being somewhat concerned. The predicted value for the youngest individuals is about 1.8. Predicted concerns reach a peak of about 2.2, also around age 70, and then decrease. Despite changes in other characteristics over the life cycle, such as reliance on social security, older individuals thus seem to feel more concerned about immigra-

tion attitudes well into their retirement.

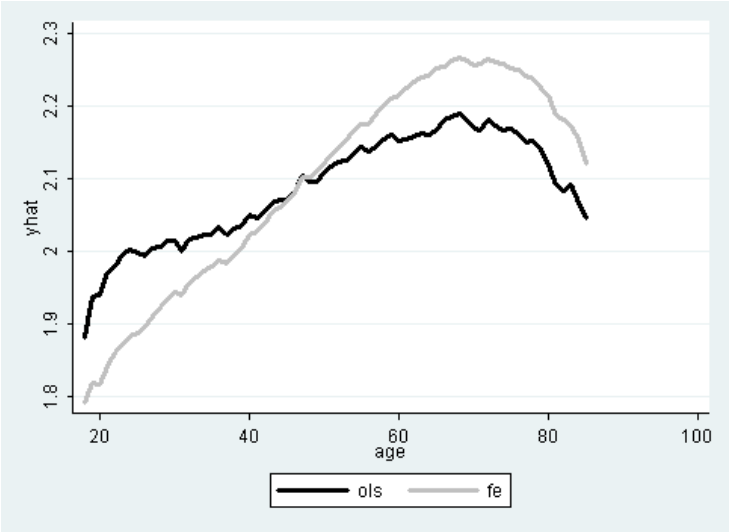

Figure 7: Predicted Immigration Concerns by Age, OLS vs. FE

Difference in concerns

This section introduces an alternative measure for immigration concerns. As discussed in section 3, immigration concerns are highly correlated with other areas of concerns and also follow a similar age profile. Furthermore, immigration and other concerns are likely to be jointly determined, such that it is difficult to argue that being concerned about some other issue has an exogenous impact on immigration concerns.

The first column of table 12 in the appendix replicates the complete regression results for the OLS model of stated immigration concerns with year of birth included as a control. The second column *excludes* other concerns as explanatory variables. Indeed, the model's explanatory power decreases quite sharply.[15] There are a few sign changes, suggesting that immigration concerns measure more than just general worries. However, these sign changes may also indicate that the two regressions are affected by endogeneity and omitted variable bias, respectively.

[15]Adding selected variables like the frequency of eating out, or a dummy for whether someone has a foreign parent, did not increase explanatory power much. Political party preference was found to increase explanatory power but is likely to suffer from similar endogeneity problems as different areas of concerns.

East Germans tend to voice more concerns than West Germans, including more concerns about immigration. Being East German thus significantly enhances immigration concerns when other concerns are *not* accounted for. Given other concerns, being East German reduces stated immigration concerns. A similar effect is observed for the number of doctor visits: individuals who visit a doctor more frequently voice more immigration concerns, presumably because they are generally more concerned. When controlling for other concerns, individuals with a higher number of doctor visits in the three months prior to the interview stated less concerns about immigration. Furthermore, household income turns insignificant as other concerns are excluded. Whereas respondents with higher incomes have less reason to be concerned, concerns about the fiscal impact of immigration increase with income, given other concerns.

The comparison of the first two columns of table 12 also shows that the estimated age pattern is strongly affected by the inclusion of other concerns as controls. Year of birth is significant with the opposite sign when excluding other concerns. That is, younger generations are estimated to be *less* concerned about immigration.

The marginal effect of age also changes somewhat, see figure 8. In both models the age effect is estimated with little precision below age 30. However, there are also significant differences. When excluding other concerns the age effect turns negative for somewhat younger ages (around age 70), and the estimated negative effect for older ages is much stronger than in the model which includes other concerns.

These changes could in principle be related to the strong multicollinearity between age and year of birth since excluding other concerns leads to a negative effect of birth year on immigration concerns but at the same time to a stronger negative effect of age for very old ages, see figure 8. However, this does not seem to be the problem, as a robustness check revealed: FE models of stated immigration concerns were compared to between effects (BE) models, which only use the variation *between* individuals. These regressions were run on the sample of individuals who remained in the panel for the whole ten-year period. The estimated age effect in the BE models then corresponds to a cohort effect. The BE models additionally allows for non-linearities in the cohort effect.

However, the estimated cohort effect is not consistent across the two models with and without other concerns excluded either.[16] The distinct estimated age and cohort effects are thus not robust to the exclusion of additional concerns.

[16]These regression results are available upon request.

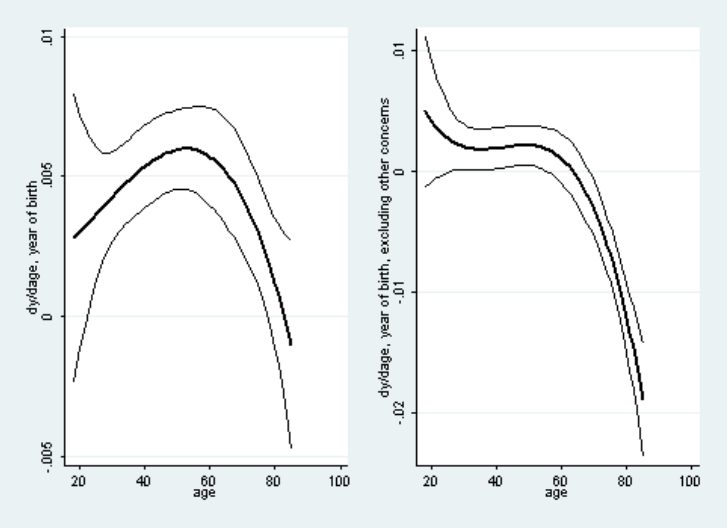

Figure 8: Marginal Effect of Age on Immigration Concerns by Age, Including vs. Excluding Other Concerns

To circumvent possible biases while separating immigration from other concerns, the difference between immigration concerns and average concerns is used as a measure for immigration attitudes. This variable has over 30 different outcomes between -2 and 2 such that linear models seem appropriate. For about 10% of individuals the value of average concerns is exactly equal to the value of immigration concerns.

The third and fourth column of table 12 show regression results for the difference between immigration and average concerns. Whereas the third column includes year of birth as a control, the fourth column includes time dummies. There are no large differences in the estimated coefficients between the two models. Furthermore, many of the variables that have a significant impact on stated immigration concerns also have a significant impact on this alternative measure of immigration attitudes. There are a few exceptions.

Being East German, the frequency of doctor visits and household income are significant with the same sign as in the model which includes other concerns as controls in the first column, confirming the above discussion. Additionally, higher life satisfaction reduces the relative prominence of immigration concerns. Individuals with low life satisfaction are likely to worry about other things than immigration. However, year of birth is still significant with the opposite sign. Older cohorts thus seem to be more concerned about immigration than about other issues. At the same time growing older lessens concerns about immigration relative to other concerns, see the left

panel of figure 9.

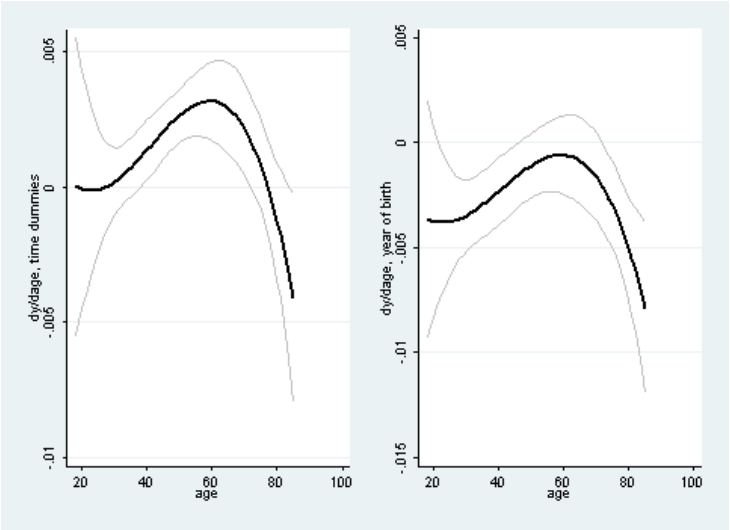

Figure 9: Marginal Effect of Age on the Difference between Immigration and Other Concerns by Age, Including Time Dummies vs. Including Year of Birth

The comparison with the estimated age pattern from the model with time dummies instead of year of birth, see the left panel of figure 9, confirms the existence of distinct cohort and life cycle effects. In this model age significantly enhances the importance of immigration relative to other issues individuals may be concerned about, at least between ages 40 and 70. The estimated age coefficients are likely to capture the negative effect of birth year. The fourth column shows that immigration concerns were most prominent relative to other issues in the base year 1999, and least prominent in 2003. Note that 2003 was the year of the Iraq war and also the year far-reaching labor market reforms were passed in Germany.

As a robustness check on the estimated age pattern, a within-transformed model of the difference in concerns is estimated and compared to the OLS model. Regression results can be found in table 13 in the appendix. Figure 10 shows the marginal effect of age on the difference in concerns in the two models. The age pattern is consistent with figure 9: whereas the OLS model which excludes both year of birth and time dummies estimates an enhancing effect of age on the new measure of immigration concerns, the FE model in the right panel shows a decline in immigration concerns over the life cycle.

The predicted difference in concerns based on the sample distribution of respondent characteristics is negative for all ages as figure 11 shows. Note

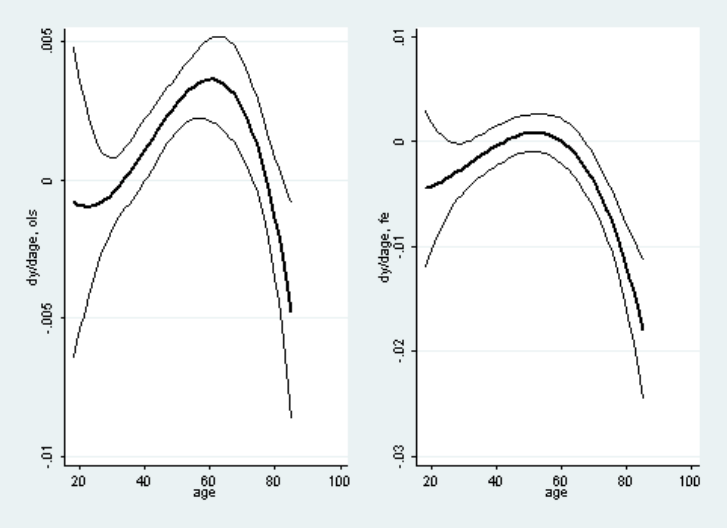

Figure 10: Marginal Effect of Age on the Difference in Concerns, OLS vs. FE

that observed average concerns are also more pronounced than immigration concerns for all ages, see figure 1. The OLS model predicts an increase in the relative importance of immigration concerns with age, with a few dips in between. The dip in concerns about immigration relative to other concerns past age 60 is quite interesting. In terms of birth year, these are the cohorts born shortly after World War Two. These cohorts may also be the first to enter retirement worrying about the future of pensions.

Over the life cycle, individuals are predicted to be most concerned about immigration when they are young and least concerned when they are old. There is a slight increase in concerns between ages 40 and 60, but around age 60, predicted concerns are still much lower than around age 20.

In summary, using the difference between immigration and other concerns as a measure for immigration attitudes leads to predictions concerning the impact of growing older and belonging to a given cohort which are contrary to the predictions based on using stated immigration concerns. Over the life cycle, stated immigration concerns are found to increase well into retirement and decrease only as individuals approach the end of their lives. Meanwhile, relative to other areas of concerns immigration concerns decrease over the life cycle. Among older cohorts immigration is more prominent relative to other issues than among young cohorts. However, the cohort effect on *stated* immigration concerns is not robust.

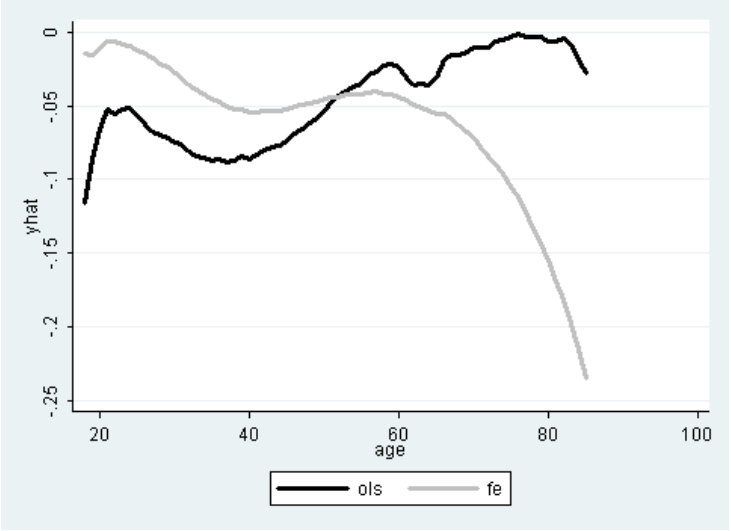

Figure 11: Predicted Difference in Concerns by Age, OLS vs. FE

5 Conclusion

This analysis has attempted to disentangle the effect of individual age on immigration attitudes from cohort and time effects to answer the question whether people grow more averse to immigration over the life cycle. To achieve this goal the paper followed two approaches. Firstly, year of birth was included as a control in addition to individual age. Time dummies were also included in some regressions instead of year of birth. Secondly, models which use the within variation of the data only were estimated. Furthermore, two different measures of immigration attitudes were analyzed.

Several presumptions concerning the impact of different individual characteristics correlated with age were derived from previous theoretical research. Firstly, older individuals who draw larger shares of their income from (domestic) capital were presumed to be in favor of labor inflows. This presumption was not borne out for ownership of all types of capital, but confirmed for firm capital, stocks and financial assets in general.

Secondly, older individuals were presumed to be less concerned about possible changes in the political balance induced by immigration. Indeed, stated immigration concerns were found to decrease strongly after age 80 whereas relative to other concerns immigration concerns decrease over most of the life cycle.

Thirdly, even with flexible pension benefits pensioners do not necessarily favor labor immigration since it has offsetting effects on the level of wages and

the number of contributors. Workers may favor labor immigration if pension contributions are adjustable to keep benefits stable. In fact, no significant difference between workers' and pensioners' attitudes was found, whereas individuals outside the labor market for other reasons were found to be less averse to immigration.

Fourthly, the contributors to welfare were presumed to be more opposed to immigration than beneficiaries, assuming that welfare contributions rather than benefits are adjustable. This presumption was also borne out: for given education levels, individuals with high incomes were found to be more concerned, whereas those who benefit from some kind of state support or who rely relatively heavily on the health system were found to be less concerned.

The predicted age profile of stated immigration concerns and of the difference between immigration and other concerns is non-linear. *Over the life cycle*, individuals are predicted to state the highest concerns in their seventies. However, relative to other issues, immigration causes most concerns at young ages. At the same time, older *cohorts* were found to be more concerned about immigration than about other issues. The effect of birth year on stated immigration concerns is not consistent over different specifications *Survey year* also turned out to significantly influence immigration attitudes with stated immigration concerns highest when unemployment is high.

The regressions which include other areas of concerns as explanatory variables seemed to suffer from endogeneity problems. However, excluding these other areas of concern may lead to an omitted-variable bias. Additionally, the share of the variance in stated immigration concerns explained by the other controls is quite low. The findings in this paper thus suggest extending the analysis by including additional variables, although this would come at the cost of reducing the sample to non-random subsamples. Possibly, valid exclusion restrictions for each area of concern could be found.

Although no pre-programed routines exist for estimating within-transformations of ordered models, incorporating within-transformations is possible under certain assumptions, see, e.g., Frijters and Geishecker (2008). Finally, the SOEP data can be disaggregated regionally when extended security provisions are satisfied. Linking the data to regional birth rates would make it possible to verify the finding by Ivlevs (2008), that individuals in areas with lower birth rates are less concerned about immigration, for Germany.

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A Descriptive Statistics

Concerns about	Obs.	Mean	Std.Dev.	very concerned	somewhat concerned	not concerned
Immigration	179,828	2.08	0.73	31.12	45.95	22.93
Index	177,722	2.13	0.39			
Economic Development	179,531	2.26	0.63	36.37	53.66	9.97
Environment	179,427	2.13	0.62	26.22	60.23	13.55
Peace	179,459	2.26	0.69	39.84	46.23	13.93
Crime	179,533	2.39	0.64	47.88	43.30	8.82
Foreigner situation	179,149	2.09	0.67	27.73	53.84	18.42
EU Enlargement	88,649	2.03	0.72	27.36	48.63	24.01
Terrorism	16,906	2.22	0.67	35.95	49.75	14.30
Own Economic Situation	179,446	1.93	0.70	21.27	50.58	28.15
Own Health	179,505	1.86	0.69	17.86	50.66	31.48
Own Job Security	102,386	1.72	0.72	15.70	40.35	43.95

The values assigned to not concerned, somewhat concerned and very concerned are 1, 2 and 3, respectively. "Index" is the average concern over the categories other than immigration asked in all years to all respondents, that is excluding terrorism, EU enlargement and job security. The last three columns show the percentage of respondents who stated to be very concerned, somewhat concerned and not concerned, respectively.

Table 5: Summary Statistics for Different Concerns

Variable	Obs.	Mean	Std.Dev.	Min	Max
Demographic characteristics					
Age	179,828	47.90	17.43	18	100
Male	179,828	0.48	0.50	0	1
Married	179,828	0.60	0.49	0	1
Number kids in HH	179,828	0.51	0.88	0	10
East German	179,828	0.27	0.45	0	1
Immigrant	179,828	0.06	0.24	0	1
Education					
Education (ISCED)	176,399	3.51	1.42	0	6
Labor force status					
Working	179,828	0.59	0.49	0	1
Retired	179,828	0.18	0.39	0	1
In education	179,828	0.03	0.17	0	1
Unemployed	179,828	0.05	0.22	0	1
On maternity leave	179,828	0.02	0.13	0	1
Working irregularly	179,828	0.02	0.15	0	1
Not working (other)	179,828	0.11	0.31	0	1
Income					
Gross HH income (yearly)	179,828	39513.95	38352.18	0	1,032,387
HH receives no benefits	178,935	0.54	0.50	0	1
Assets					
HH owns no assets	178,241	0.11	0.31	0	1
HH owns savings account	156,047	0.88	0.33	0	1
HH owns bonds	55,914	0.66	0.47	0	1
HH owns stocks	64,793	0.71	0.46	0	1
HH owns firm capital	28,957	0.34	0.48	0	1
HH owns building savings contract	179,701	0.45	0.50	0	1
HH owns life insurance	179,701	0.57	0.50	0	1
Owns financial assets	35,379	0.48	0.50	0	1
Value financial assets	13,881	31,524	111,887	1	6,000,000
Other variables					
Political interest	179,616	2.69	0.80	1	4
Life satisfaction	179,539	6.93	1.78	0	10
Doctor visits (last 3 months)	179,202	2.58	4.14	0	99

Household income is deflated to 2006. Political interest ranges from 1 (very strong) to 4 (none at all).

Table 6: Summary Statistics for Control Variables

Value	Definition
1	Primary education or first stage of basic education
2	Lower secondary or second stage of basic education
3	(Upper) secondary education
4	Post-secondary non-tertiary education
5	First stage of tertiary education
6	Second stage of tertiary education

Table 7: International Standard Classification of Education

B Detailed Regression Results

Immigration concerns	OLS	Ordered Probit	Ordered Logit
Age	-0.00336	-0.00618	-0.0130
	(0.0113)	(0.0210)	(0.0356)
Age^2	0.0000204	0.0000315	0.000175
	(0.000361)	(0.000673)	(0.00114)
Age^3	0.00000131	0.00000256	0.00000217
	(0.00000482)	(0.00000899)	(0.0000152)
Age^4	-1.38e-08	-2.65e-08	-3.25e-08
	(2.27e-08)	(4.24e-08)	(7.19e-08)
2000	-0.0803***	-0.149***	-0.250***
	(0.00629)	(0.0117)	(0.0199)
2001	-0.160***	-0.294***	-0.495***
	(0.00653)	(0.0121)	(0.0206)
2002	-0.0997***	-0.185***	-0.314***
	(0.00657)	(0.0122)	(0.0208)
2003	-0.160***	-0.294***	-0.499***
	(0.00695)	(0.0129)	(0.0220)
2004	-0.0637***	-0.117***	-0.199***
	(0.00693)	(0.0129)	(0.0220)
2005	-0.00117	-0.0000432	-0.0000484
	(0.00698)	(0.0132)	(0.0223)
2006	-0.0287***	-0.0526***	-0.0841***
	(0.00697)	(0.0130)	(0.0221)
2007	-0.0461***	-0.0849***	-0.143***
	(0.00713)	(0.0133)	(0.0226)
2008	-0.0972***	-0.181***	-0.300***
	(0.00714)	(0.0133)	(0.0226)
Male	0.0869***	0.163***	0.278***
	(0.00575)	(0.0107)	(0.0181)
Married	0.0384***	0.0705***	0.119***

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Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The models account for clustering at the individual level. HH income is the natural logarithm of real household income, adjusted for the number of household members. The reference category for education is "in school". The reference category for labor force status is "working". Political interest ranges from 1 (very strong) to 4 (none at all).

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Immigration concerns	OLS	Ordered Probit	Ordered Logit
	(0.00652)	(0.0121)	(0.0205)
Number kids in HH	-0.0205***	-0.0382***	-0.0646***
	(0.00371)	(0.00689)	(0.0117)
East German	-0.0265***	-0.0513***	-0.0887***
	(0.00678)	(0.0125)	(0.0213)
Immigrant	-0.235***	-0.429***	-0.720***
	(0.0108)	(0.0200)	(0.0340)
Isced 1 2	0.0536***	0.0962***	0.177***
	(0.0191)	(0.0358)	(0.0613)
Isced 3 4 5	0.0173	0.0289	0.0625
	(0.0191)	(0.0358)	(0.0613)
Isced 6	-0.188***	-0.349***	-0.578***
	(0.0208)	(0.0389)	(0.0665)
Retired	-0.00292	-0.00544	-0.00676
	(0.0125)	(0.0233)	(0.0393)
In education	-0.128***	-0.239***	-0.407***
	(0.0138)	(0.0260)	(0.0445)
Unemployed	0.000433	-0.000232	-0.00589
	(0.00959)	(0.0179)	(0.0306)
On maternity leave	-0.0149	-0.0263	-0.0460
	(0.0144)	(0.0265)	(0.0447)
Working irregularly	-0.0385***	-0.0700***	-0.120***
	(0.0128)	(0.0236)	(0.0404)
Not working (other)	-0.0150*	-0.0288*	-0.0499*
	(0.00865)	(0.0160)	(0.0270)
HH income	0.00506***	0.00953***	0.0152***
	(0.00127)	(0.00238)	(0.00402)
Receives no benefits	0.0175***	0.0319***	0.0551***
	(0.00635)	(0.0118)	(0.0200)
Owns no assets	0.0196***	0.0368***	0.0658***
	(0.00735)	(0.0139)	(0.0235)
Political interest	0.0442***	0.0824***	0.137***
	(0.00339)	(0.00639)	(0.0109)
Life satisfaction	-0.00834***	-0.0156***	-0.0264***
	(0.00139)	(0.00262)	(0.00445)
Doctor visits	-0.00181***	-0.00342***	-0.00592***
	(0.000497)	(0.000928)	(0.00160)
Concerns			
Economic Development	0.173***	0.322***	0.554***
	(0.00380)	(0.00706)	(0.0122)
Environment	-0.0127***	-0.0213***	-0.0373***
	(0.00423)	(0.00792)	(0.0136)
Peace	-0.0316***	-0.0594***	-0.107***
	(0.00388)	(0.00720)	(0.0124)
Crime	0.409***	0.742***	1.296***

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Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The models account for clustering at the individual level. HH income is the natural logarithm of real household income, adjusted for the number of household members. The reference category for education is "in school". The reference category for labor force status is "working". Political interest ranges from 1 (very strong) to 4 (none at all).

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Immigration concerns	OLS	Ordered Probit	Ordered Logit
	(0.00401)	(0.00771)	(0.0135)
Foreigner situation	0.0857***	0.162***	0.283***
	(0.00398)	(0.00754)	(0.0132)
Own economic situation	0.0604***	0.113***	0.192***
	(0.00370)	(0.00687)	(0.0117)
Own health	0.0373***	0.0699***	0.118***
	(0.00377)	(0.00699)	(0.0119)
Constant	0.437***		
	(0.121)		
γ_1		2.127***	3.676***
		(0.225)	(0.383)
γ_2		3.639***	6.262***
		(0.225)	(0.383)
Observations	171,762	171,762	171,762
(Pseudo) R^2	0.270	0.147	0.149
Joint significance	$F(4, 29424) = 4.79$	$\chi^2(4) = 19.28$	$\chi^2(4) = 16.54$
of all age terms	$Prob > F = 0.0007$	$Prob > \chi^2 = 0.0007$	$Prob > \chi^2 = 0.0024$

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The models account for clustering at the individual level. HH income is the natural logarithm of real household income, adjusted for the number of household members. The reference category for education is "in school". The reference category for labor force status is "working". Political interest ranges from 1 (very strong) to 4 (none at all).

Table 8: Regression Results for Immigration Concerns, Including Time Dummies, OLS vs. Non Linear Models

Immigration concerns	OLS	Ordered Probit	Ordered Logit
Age	0.00155	0.00293	0.00204
	(0.0113)	(0.0209)	(0.0355)
Age^2	0.00000374	-0.000000720	0.000139
	(0.000361)	(0.000669)	(0.00113)
Age^3	0.00000152	0.00000294	0.00000257
	(0.00000482)	(0.00000894)	(0.0000151)
Age^4	-1.47e-08	-2.80e-08	-3.40e-08
	(2.27e-08)	(4.22e-08)	(7.13e-08)
Year of birth	0.00442***	0.00811***	0.0140***
	(0.000607)	(0.00113)	(0.00190)
Other controls	yes	yes	yes
Observations	171,762	171,762	171,762
(Pseudo) R^2	0.265	0.144	0.146
Joint significance	$F(4, 29424) = 19.21$	$\chi^2(4) = 75.36$	$\chi^2(4) = 74.20$
of all age terms	$Prob > F = 0.0000$	$Prob > \chi^2 = 0.0000$	$Prob > \chi^2 = 0.0000$

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The models account for clustering at the individual level. The other control variables are the same as in table 8, excluding time dummies.

Table 9: Regression Results for Immigration Concerns, Including Year of Birth, OLS vs. Non Linear Models

Immigration concerns	OLS	Ordered Probit	Ordered Logit
Age	0.0122	0.0231	0.0367
	(0.0123)	(0.0229)	(0.0390)
Age^2	-0.00000135	-0.0000179	0.000107
	(0.000390)	(0.000730)	(0.00124)
Age^3	0.00000138	0.00000280	0.00000225
	(0.00000519)	(0.00000972)	(0.0000165)
Age^4	-1.31e-08	-2.56e-08	-2.90e-08
	(2.44e-08)	(4.57e-08)	(7.77e-08)
Year of birth	0.0144***	0.0268***	0.0459***
	(0.000756)	(0.00142)	(0.00241)
HH income	0.00435***	0.00795***	0.0130***
	(0.00132)	(0.00249)	(0.00420)
HH receives no benefits	0.0220***	0.0403***	0.0681***
	(0.00675)	(0.0127)	(0.0214)
HH owns savings account	-0.00914	-0.0168	-0.0319*
	(0.00563)	(0.0106)	(0.0180)
HH owns building loan	0.0168***	0.0316***	0.0516***
	(0.00548)	(0.0102)	(0.0173)
HH owns life insurance	0.00667	0.0143	0.0215
	(0.00562)	(0.0105)	(0.0179)
HH owns bonds	0.0178***	0.0343***	0.0561***
	(0.00610)	(0.0113)	(0.0191)
HH owns firm capital	-0.0298***	-0.0553***	-0.0895**
	(0.0113)	(0.0211)	(0.0359)
HH owns stocks	-0.0297***	-0.0537***	-0.0925***
	(0.00571)	(0.0106)	(0.0179)
Other controls	yes	yes	yes
Observations	139,976	139,976	139,976
(Pseudo) R^2	0.278	0.152	0.154
Joint significance	$F(4, 26150) = 95.38$	$\chi^2(4)375.22$	$\chi^2(4) = 374.87$
of all age terms	$Prob > F = 0.0000$	$Prob > \chi^2 = 0.0000$	$Prob > \chi^2 = 0.0000$

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The models account for clustering at the individual level. The other control variables are the same as in table 8, excluding time dummies.

Table 10: Effects of Different Assets on Immigration Concerns, OLS vs. Non Linear Models

Immigration concerns	OLS	FE
Age	-0.00418	0.00805
	(0.0114)	(0.0153)
Age^2	0.0000149	-0.000267
	(0.000366)	(0.000486)
Age^3	0.00000176	0.00000694
	(0.00000488)	(0.00000651)
Age^4	-1.73e-08	-5.01e-08
	(2.30e-08)	(3.10e-08)
Married	0.0371***	0.00584
	(0.00658)	(0.00862)
Number kids in HH	-0.0229***	-0.00833*
	(0.00376)	(0.00441)
Isced 1 2	0.0450**	0.00294
	(0.0194)	(0.0227)
Isced 3 4 5	0.0196	0.0202
	(0.0194)	(0.0217)
Isced 6	-0.190***	0.0168
	(0.0210)	(0.0287)
Retired	-0.00911	-0.0106
	(0.0126)	(0.0111)
In education	-0.137***	-0.0121
	(0.0140)	(0.0131)
Unemployed	-0.00642	0.00116
	(0.00976)	(0.00826)
On maternity leave	-0.0511***	-0.00175
	(0.0144)	(0.0121)
Working irregularly	-0.0392***	-0.0227**
	(0.0129)	(0.0105)
Not working (other)	-0.0350***	-0.0162**
	(0.00866)	(0.00791)
HH income	0.00694***	0.00167
	(0.00127)	(0.00121)
HH receives no benefits	0.0228***	0.0104*
	(0.00642)	(0.00569)
HH owns no assets	0.0175**	0.00375
	(0.00751)	(0.00653)
Political Interest	0.0289***	-0.00151
	(0.00338)	(0.00306)
Life satisfaction	-0.0104***	-0.00473***
	(0.00140)	(0.00119)
Doctor visits	-0.00208***	-0.00193***
	(0.000509)	(0.000428)
Concerns		
Economic development	0.182***	0.0913***
	(0.00359)	(0.00291)

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Standard errors in parentheses. $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The models account for clustering at the individual level and include a constant. HH income is the natural logarithm of real household income, adjusted for the number of household members. The reference category for education is "in school". The reference category for labor force status is "working". Political interest ranges from 1 (very strong) to 4 (none at all).

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Immigration concerns	OLS	FE
Environment	-0.00681	0.0298***
	(0.00421)	(0.00335)
Peace	-0.0493***	0.0169***
	(0.00374)	(0.00297)
Crime	0.410***	0.197***
	(0.00397)	(0.00336)
Foreigner situation	0.0839***	0.203***
	(0.00400)	(0.00318)
Own economic situation	0.0578***	0.0374***
	(0.00371)	(0.00308)
Own health	0.0338***	0.0180***
	(0.00381)	(0.00316)
Observations	171,636	171,636
Individuals	29,299	29,299
Average time in panel	5.9	5.9
Overall R^2	0.256	0.177
Within R^2		0.122
Between R^2		0.199
Joint significance	$F(4, 29298) = 5.79$	$F(4, 29298) = 29.18$
of all age terms	$Prob > F = 0.0001$	$Prob > F = 0.0000$

Standard errors in parentheses. $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The models account for clustering at the individual level and include a constant. HH income is the natural logarithm of real household income, adjusted for the number of household members. The reference category for education is "in school". The reference category for labor force status is "working". Political interest ranges from 1 (very strong) to 4 (none at all).

Table 11: Regression Results for Immigration Concerns, OLS vs. FE

Immigration Attitudes	Immigration concerns	Immigration concerns excluding other concerns	Difference in concerns	Difference in concerns including time dummies
Age	0.00155	0.0200	0.00150	0.00524
	(0.0113)	(0.0140)	(0.0124)	(0.0124)
Age^2	0.00000374	-0.000687	-0.000269	-0.000273
	(0.000361)	(0.000449)	(0.000398)	(0.000398)
Age^3	0.00000152	0.0000113*	0.00000547	0.00000555
	(0.00000482)	(0.00000602)	(0.00000531)	(0.00000531)
Age^4	-1.47e-08	-6.80e-08**	-3.35e-08	-3.39e-08
	(2.27e-08)	(2.85e-08)	(2.50e-08)	(2.50e-08)
Year of birth	0.00442***	-0.00143**	-0.00368***	
	(0.000607)	(0.000678)	(0.000635)	
Male	0.0866***	0.0385***	0.131***	0.130***
	(0.00575)	(0.00712)	(0.00643)	(0.00642)
Married	0.0381***	0.0845***	0.0399***	0.0398***
	(0.00652)	(0.00807)	(0.00725)	(0.00724)
Number kids in HH	-0.0208***	-0.0149***	-0.0161***	-0.0158***
	(0.00371)	(0.00461)	(0.00405)	(0.00405)
East German	-0.0261***	0.0560***	-0.0346***	-0.0353***
	(0.00678)	(0.00806)	(0.00747)	(0.00747)
Immigrant	-0.234***	-0.229***	-0.276***	-0.276***
	(0.0108)	(0.0132)	(0.0115)	(0.0114)
Isced 1 2	0.0548***	0.0570***	0.0789***	0.0767***
	(0.0191)	(0.0220)	(0.0209)	(0.0208)
Isced 3 4 5	0.0184	0.0154	0.0347*	0.0325
	(0.0191)	(0.0221)	(0.0209)	(0.0209)
Isced 6	-0.186***	-0.300***	-0.196***	-0.200***
	(0.0208)	(0.0243)	(0.0229)	(0.0228)
Retired	-0.000754	-0.00483	-0.00400	-0.00666
	(0.0125)	(0.0153)	(0.0139)	(0.0138)

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Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. HH income is the natural logarithm of real household income, adjusted for the number of household members. The reference category for education is "in school". The reference category for labor force status is "working". Political interest ranges from 1 (very strong) to 4 (none at all).

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Immigration Attitudes	Immigration concerns	Immigration concerns excluding other concerns	Difference in concerns	Difference in concerns including time dummies
In education	-0.126***	-0.198***	-0.139***	-0.140***
	(0.0138)	(0.0164)	(0.0155)	(0.0155)
Unemployed	0.000520	0.0183	-0.00523	-0.00490
	(0.00961)	(0.0111)	(0.0103)	(0.0103)
On maternity leave	-0.0140	-0.00401	-0.00563	-0.00726
	(0.0144)	(0.0170)	(0.0153)	(0.0154)
Working irregularly	-0.0390***	-0.0572***	-0.0739***	-0.0734***
	(0.0128)	(0.0144)	(0.0142)	(0.0142)
Not working (other)	-0.0151*	-0.0248**	-0.0166*	-0.0160*
	(0.00864)	(0.0107)	(0.00951)	(0.00951)
HH income	0.00517***	0.000299	0.00912***	0.00906***
	(0.00127)	(0.00154)	(0.00138)	(0.00138)
HH receives no benefits	0.0174***	0.0340***	0.0219***	0.0218***
	(0.00635)	(0.00778)	(0.00703)	(0.00702)
HH owns no assets	0.0211***	0.0424***	0.0209***	0.0187**
	(0.00736)	(0.00901)	(0.00792)	(0.00790)
Political interest	0.0452***	0.0239***	0.0664***	0.0643***
	(0.00338)	(0.00418)	(0.00384)	(0.00385)
Life satisfaction	-0.00826***	-0.0332***	0.0120***	0.0121***
	(0.00139)	(0.00164)	(0.00151)	(0.00151)
Doctor visits	-0.00195***	0.00119**	-0.00704***	-0.00696***
	(0.000498)	(0.000581)	(0.000538)	(0.000537)
Other concerns	yes	no	no	no
2000				-0.0697***
				(0.00654)
2001				-0.154***
				(0.00676)

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Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. HH income is the natural logarithm of real household income, adjusted for the number of household members. The reference category for education is "in school". The reference category for labor force status is "working". Political interest ranges from 1 (very strong) to 4 (none at all).

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Immigration Attitudes	Immigration concerns	Immigration concerns excluding other concerns	Difference in concerns	Difference in concerns including time dummies
2002				-0.120***
				(0.00684)
2003				-0.240***
				(0.00696)
2004				-0.0997***
				(0.00712)
2005				-0.0370***
				(0.00718)
2006				-0.0852***
				(0.00726)
2007				-0.111***
				(0.00742)
2008				-0.147***
				(0.00747)
Observations	171,762	171,762	171,762	171,762
R^2	0.265	0.061	0.049	0.057
Joint significance	$F(4, 29424) = 19.21$	$F(4, 29424) = 25.78$	$F(4, 29424) = 6.00$	$F(4, 29424) = 8.95$
of all age terms	$Prob > F = 0.0000$	$Prob > F = 0.0000$	$Prob > F = 0.0001$	$Prob > F = 0.0000$

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. HH income is the natural logarithm of real household income, adjusted for the number of household members. The reference category for education is "in school". The reference category for labor force status is "working". Political interest ranges from 1 (very strong) to 4 (none at all).

Table 12: Regression Results for Immigration Concerns vs. Difference in Concerns

Difference in concerns	OLS	FE
Age	0.00560	-0.00279
	(0.0127)	(0.0159)
Age^2	-0.000337	-0.000176
	(0.000405)	(0.000505)
Age^3	0.00000691	0.00000589
	(0.00000541)	(0.00000676)
Age^4	-4.19e-08	-4.60e-08
	(2.55e-08)	(3.22e-08)
Married	0.0427***	0.00563
	(0.00735)	(0.00890)
Number kids in HH	-0.0167***	-0.00876*
	(0.00415)	(0.00455)
Isced 1 2	0.0731***	0.00663
	(0.0213)	(0.0235)
Isced 3 4 5	0.0408*	0.0284
	(0.0213)	(0.0226)
Isced 6	-0.197***	0.0277
	(0.0233)	(0.0298)
Retired	-0.0220	-0.00934
	(0.0140)	(0.0115)
In education	-0.154***	-0.00852
	(0.0158)	(0.0137)
Unemployed	-0.0134	-0.0185**
	(0.0105)	(0.00855)
On maternity leave	-0.0653***	0.0108
	(0.0154)	(0.0126)
Working irregularly	-0.0752***	-0.0319***
	(0.0144)	(0.0110)
Not working (other)	-0.0443***	-0.0140*
	(0.00957)	(0.00820)
HH income	0.0114***	0.00308**
	(0.00138)	(0.00125)
HH receives no benefits	0.0330***	0.0138**
	(0.00716)	(0.00590)
HH owns no assets	0.0127	0.00648
	(0.00813)	(0.00678)
Political interest	0.0429***	0.0163***
	(0.00387)	(0.00317)
Life satisfaction	0.0107***	0.0112***
	(0.00152)	(0.00121)
Doctor visits	-0.00748***	-0.00476***
	(0.000554)	(0.000445)

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Standard errors in parentheses. $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The models account for clustering at the individual level and include a constant. HH income is the natural logarithm of real household income, adjusted for the number of household members. The reference category for education is "in school". The reference category for labor force status is "working". Political interest ranges from 1 (very strong) to 4 (none at all).

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Difference in concerns	OLS	FE
Observations	171,636	171,636
Individuals	29,299	29,299
Average time in panel	5.9	5.9
Overall R^2	0.031	0.002
Within R^2		0.003
Between R^2		0.001
Joint significance	$F(4, 29298) = 9.16$	$F(4, 29298) = 9.19$
of all age terms	$Prob > F = 0.0000$	$Prob > F = 0.0000$

Standard errors in parentheses. $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The models account for clustering at the individual level and include a constant. HH income is the natural logarithm of real household income, adjusted for the number of household members. The reference category for education is "in school". The reference category for labor force status is "working". Political interest ranges from 1 (very strong) to 4 (none at all).

Table 13: Regression Results for the Difference in Concerns, OLS vs. FE